REMARKS

(A) STATUS OF THE APPLICATION

Applicants thank the Examiner for his explanation of the rejections in the Non-Final Office Action dated June 12, 2007.

(I) DISPOSITION OF CLAIMS

(i) Claims 1-12 are pending in the application.

(ii) Claims 12 has been withdrawn.

(iii) Claims 1-11 are rejected under 35 U.S.C. § 112, 1st ¶, or 2nd ¶, and 35 U.S.C. § 103(a).

(II) APPLICANTS' ACTION

(i) Applicants have amended Claims 1 & 8.

(ii) Applicants have canceled Claims 2 & 3.

(iii) Applicants also respond to the above rejections.

In the discussion below, comments under the sub-heading "Examiner's Comments" are attributed to the Examiner. Unless specified, Applicants do not generally agree with the assertions made by the Examiner. Applicants responses to Examiner comments are provided in under the sub-heading beginning with "Applicants Response."

(B) RESPONSE TO REJECTION UNDER 35 U.S.C. § 112, 2ND ¶-CLAIMS 2, 3 & 8

(I) EXAMINER'S COMMENTS

The Examiner rejects Claims 2, 3, and 8 under 35 U.S.C. § 112, 2nd ¶ because the claims are indefinite, in that, they fail to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

In Claim 2, it is unclear to the Examiner if the water used for making the epoxy dispersion is in addition to the 50 to 200 parts by weight of water added during step

(a) [sub-element E)], of Claim 1. The Examiner suggests that this indefiniteness can be addressed by changing the phrase "then adding components B) – E)" to "then adding components B) – D)."

Claim 2 is also indefinite because the use of the term "consisting" in Claim 1 excludes the "additional" water in Claim 2.

Claim 3 is indefinite because it depends on Claim 2 and Claim 8 is indefinite because the use of the term "consisting" in Claim 1 excludes additional use of organo-metallic ester in Claim 8.

(II) APPLICANTS' RESPONSE

In response to the Examiner's rejection of Claim 2, 3, and 8, based on 35 U.S.C. § 112, 2nd ¶, Applicants have amended Claim 1 to clarify the inclusion of the two waters, first to form an epoxy dispersion, and second to form the aqueous composition such that the solids content of the composition is from about 30 to about 60% solids. The basis for the Claim 1 amendment is the canceled Claim 2.

Secondly, Applicants have deleted Claims 2 & 3. Also, Applicants have amended Claim 8 in such manner that the indefiniteness from inclusion of a new element (in dependent Claim 8) to a closed set of elements of Claim 1 is now avoided.

Therefore, the rejection based on 35 U.S.C. § 112, 2nd ¶ is rendered moot.

(C) RESPONSE TO REJECTION UNDER 35 U.S.C. § 112, 2ND ¶-CLAIMS 2 & 3

(I) EXAMINER'S COMMENTS

Claims 2 and 3 stand rejected because they fail to comply with the written description requirement of 35 U.S.C. § 112, 1st ¶. The subject matter of the claims must be described in the Specification in a manner such that the description reasonably conveys to a person ordinarily skilled in the relevant art that the inventors had possession of the claimed invention, at the time the application was filed. And that is not the case here.

Particularly, Claim 2 covers aqueous coating composition, an epoxy dispersion, that is produced by mixing an epoxy resin with water, followed by the addition of components described in elements B) through E) of step (a) in Claim 1. However, element E) already describes adding 50 to 100 parts of water to the composition. In other words, Claim 2 indicates that said 50 to 100 parts of water are added to the composition, over an above the mixing of epoxy and water. The original disclosure fails to reasonably convey this double addition of water.

(II) APPLICANTS' RESPONSE

Applicants have canceled Claims 2 and 3, and have included Claim 2 limitations in Claim 1. Applicants have also amended Claim 1 (in addition to the Claim 2 limitation) to include an aqueous composition 1 and an aqueous composition 2. In aqueous composition 1, water is not added during step A1, i.e., the solids content is 100%. In aqueous composition 2, said epoxy resin is provided as a dispersion in water. Such an inclusion of the dispersion in element A2), and the limiting condition "*wherein the combined quantity of said first water and said second water in steps A2) and step E2), respectively, is of such amount that said aqueous composition 2 has a solids content of 30% to 60%,*" helps avoid the closure problem caused by the term "consisting," as pointed out by the Examiner in the present Office Action. Applicants respectfully submit that because the solids content of the aqueous composition is now limited to 30-60%, it is moot whether water was added during or prior to addition of element E2).[1]

(D) RESPONSE TO REJECTION UNDER 35 U.S.C. § 103(A)--JP 723 IN VIEW OF EP 717059 AND OPTIONALLY US 5,550,462-CLAIMS 1-7 & 9-11

(I) EXAMINER COMMENT 1

The Examiner asserts that references JP 11-162723 (*hereinafter* "JP 723"), and EP Patent Application EP 0717,059 to Walker (*hereinafter* "Walker"), and optionally U.S.

[1] Applicants draw attention to the assertion on Page 5, Lines 9-10 of the Specification expressing a solids content of 30-60% of the aqueous composition.

Patent No. 5,550,462 to Young, *et al.* (*hereinafter* "Young"), render Claims 1-7, and 9-11 obvious under 35 U.S.C. § 103(a).

With regards to the aqueous coating compositions, JP 723 discloses providing aqueous compositions comprising 100 parts epoxy resin based on bisphenol-A-type, 1-40 parts hardening agent comprising latent curing agents such as dicyandiamide and phenol resin, water, and additives such as silica, pigments, "membrane formation assistant" and "dispersibility improver."

The JP 723 epoxy resin reads on part A of Claim 1, the dicyandiamide reads on part B of Claim 1, the phenol resin reads on part C of Claim 1, and the water reads on part E of Claim 1, according to the Examiner. As to part D of Claim 1, Walker suggests using a solvent.

(II) APPLICANTS' RESPONSE TO EXAMINER COMMENT 1

In response to the Office Action of March 28, 2006 (*hereinafter* the "March Office Action"), Applicants had argued that their invention covered the use of dicyandiamide without any phenol resin as a further curing agent, and that JP 723 and JP 2000-34574 used phenol resin as a curing agent. The Examiner responded to this argument in the October 17, 2006 Office Action (*hereinafter* the "October Office Action")—that Applicants should have argued but had failed to argue that their invention "**require[d]** the use of dicyandiamide without any phenol resin as further curing agent."[2]

Secondly, according to the Examiner in the October Office Action, Applicants had also failed to argue that "Applicant's [*sic*] claimed invention **exclude[d]** the additional phenol resin as curing agent" although "Applicant's [*sic*] claimed invention [did] not need the additional phenol resin as curing agent,. . ."[3]

In other words,

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[2] Emphasis in the original; see October Office Action, Page 4, 3rd full paragraph.
[3] Emphasis in the original for the term "excludes." Emphasis is added to the term "need," to demonstrate the difference suggested by the Examiner.

(a) although Applicants' invention uses dicyandiamide without the use of phenol resin, Applicants failed to expressly require using dicyandiamide without any phenol resin; and

(b) although Applicants' invention does not need additional phenol resin, Applicants failed to expressly exclude use of the phenol resin.

In their response to the October Office Action, Applicants submitted that the disparity arose because, in step (a) (of Claim 1), for reciting the minimum required components in the aqueous composition, the transitional phrase used was "comprising." The usage of "comprising" made step (a) open to interpretation for including any composition in which, at least, components A) through E) were present. Other components could also be present. But at least, A) through E) were necessarily present. In other words, the possibility of presence of a phenol resin, in addition to the dicyandiamide, as a curing agent, was not ruled out.

In response to the October Office Action, Applicants amended Claim 1 to remove such ambiguity in interpretation by replacing the transitional phrase "comprising" in step (a) with the transitional phrase "consisting of." By definition, the amendment restricted the components in the aqueous composition to A) through E); and no more. Clearly, and as a result, the possibility of using phenol resin as an additional curing agent was non-existent.

However, and assuming that the "consisting of" phrase signifies a closed system of components used for the aqueous composition, the Examiner now suggests that the term "additives" includes phenol resins (the Examiner did not raise this argument in the previous Office Action).

Applicants respectfully disagree to such interpretation. Although the Specification of the subject patent application does not provide a definition of the term "additives," it is well-known that when such is the case, the next best source for interpretation of a term is the usage of the term in the pertinent art. As pertinent art, Applicants submit here as Exhibit 1, an article from Ullmann's Encyclopedia of Industrial Chemistry,

Volume 18, Pages 465-472 (*hereinafter* "Ullmann"). Applicants have highlighted relevant sections on Page 465 and quote from the same page as follows:

> **5. Paint Additives**
> In ***addition*** to ***resins***, solvents, and pigments, paints also contain ***additives***. The additive content is typically between ***0.01 and 1%***. Paint additives are used to prevent defects in the coating (e.g., foam bubbles, poor leveling, flocculation, sedimentation) or to impart specific properties to the paint (e.g., better slip, flame retardance, UV stability) that are otherwise difficult to achieve.
>
> ... ...
>
> Additives may be classified in the following groups:
> 1) Defoamers
> 2) Wetting and dispersing additives
> 3) Surface additives
> 4) Rheology additives
> 5) Driers and catalysts
> 6) Preservatives
> 7) Light stabilizers
> 8) Corrosion inhibitors

According to Ullmann, additives are added **in addition** to resins to create compositions. In other words, additives are **NOT** resins. Phenol resin is a resin. Therefore, phenol resin is NOT an "additive," as interpreted by the pertinent art. Secondly, according to Ullmann, additives are used generally in the amount of 0.01% to 1%. JP 723 uses its phenolic resin in the amount from 0.3% to 28% (based on calculations from the data provided in present Office Action by the Examiner), which the Examiner suggests can be construed as an additive. Clearly, the Examiner's assertion is inapposite to the teachings of the pertinent art. Finally, JP 723 uses the phenolic resin as a curing agent. According to the pertinent art, additives are not understood to function as curing agents. Because the subject patent application distinctly indicates that its aqueous composition includes only dicyandiamide as a curing agent, and in light of the understanding gleaned from the pertinent art, Applicants respectfully submit that the term "additive" as used in the subject patent application cannot be read to include phenolic resin.

(III) EXAMINER COMMENT 2

The Examiner also argues, as a related matter, that Claim 1 fails to require either explicitly or inherently a polyaddition reaction because it fails to require using dicyandiamide as the only curing agent.

(IV) APPLICANTS' RESPONSE TO EXAMINER COMMENT 2

Applicants had argued in their response to the March Office Action that JP 723 was based on polycondensation reaction between the epoxy resin and the phenol resin, and not a polyaddition reaction. On the other hand, the present invention does not need a phenol resin as a curing agent, and therefore, it does not use polycondensation reaction mechanism to provide desired properties. In fact, Applicants had argued then and reiterated in response to the October Office Action that their claimed invention was based on polyaddition reaction between the epoxy resin and dicyandiamide. The Examiner argued in the October Office Action that the polyaddition reaction between the epoxy resin and dicyandiamide should be expressly required in Claim 1.

Applicants further submit that the mechanism under which a polymerization reaction progresses is defined principally by the reactants present in the reaction mixture.[4] Once the reactants and the reaction conditions are defined, the polymerization mechanism is also defined, i.e., the mechanism is an inherent characteristic of the reactants and the reaction conditions.

Furthermore, because of the change in the transitional phrase from "comprising" to "consists of" in the previous Office Action response, (see discussion *supra*), Claim 1 is limited to include only components A) through E) in step (a). In other words, any other curing agent, except that described in components A) through E), and that may react with the epoxy resin by a mechanism other than polyaddition, is automatically excluded. Of course, the only curing agent described in components A) through E) of step (a) is dicyandiamide.

Therefore, Applicants submit that Claim 1 does not need a limitation based on the reaction mechanism, polyaddition or polycondensation.

[4] Applicants are cognizant that polymerization mechanisms can possibly, but not always, be altered by using different reaction conditions and/or addition of catalysts that promote one particular polymerization over another. However, this discussion is not pertinent to the issue at hand raised by the Examiner.

Because Claims 4-7 and 9-11 are dependent claims that recite even further limitations to Claim 1, Applicants rely upon the arguments presented above to rebut the Examiner's assertion that said are unpatentable over JP 723 in view of Walker and optionally in view of Young.

Applicants respectfully submit that NOT all elements of Claim 1 are disclosed by the combined references JP 723, Walker and Young. Therefore, Claim 1 and by extension, its dependent claims are not unpatentable as obvious under 35 U.S.C. § 103(a).

(E) RESPONSE TO REJECTION UNDER 35 U.S.C. § 103(A)—JP 723 IN VIEW OF 2000-34574, OPTIONALLY U.S. PAT. NO. 5,550,462, FURTHER IN VIEW OF U.S. PAT. NO. 4,307,212 OR U.S. PAT. NO. 2,962,410—CLAIM 8

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 723 in view of JP 574 and optionally in view of Young further in view of Stark (U.S. Patent No. 4,307,212) or Kohn, *et al.* (U.S. Patent No. 2,962,410).

In response, Applicants submit that because Claim 8 is a dependent claim, which recites even further limitations to Claim 1 that has already been traversed, Applicants rely upon the arguments presented above to rebut the Examiner's assertion that Claim 8 is unpatentable over the above-cited references.

CONCLUSION

In view of the above remarks, Applicants respectfully submit that stated grounds of rejection have been properly traversed, accommodated, or rendered moot and that a complete response has been made to the Non-Final Office Action mailed on June 12, 2007.

Therefore, Applicants believe that the Application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited.

If the Examiner has questions regarding the Application or the contents of this Response, the Examiner is invited to contact the undersigned at the number provided.

Applicants believe that a that a one-month extension of time is required under 37 C.F.R. § 1.136(a). Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928.

RESPECTFULLY SUBMITTED,

DATED: SEPTEMBER 17, 2007

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